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IS : 4950 - 1968

# *Indian Standard*
# SPECIFICATION FOR BACON RASHERS, CANNED

( Second Reprint JUNE 1985 )

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

**Gr 3**

*March* 1969

# *Indian Standard*
# SPECIFICATION FOR BACON RASHERS, CANNED

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# AMENDMENT NO. 1 JULY 1989
## TO
# IS : 4950 - 1968 SPECIFICATION FOR BACON RASHERS, CANNED

( *Page* 4, *clause* 3.2.1, *line* 2 ) — Insert the following after the sentence ending with 'overfat':

'The bacon with more than 2·5 cm thick layer of adipose tissue ( back fat ) shall be taken as over fat.'

( AFDC 18 )

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# AMENDMENT NO. 2 MARCH 2004
# TO
# IS 4950 : 1968 SPECIFICATION FOR BACON RASHERS, CANNED

( *Page* 4, *clause* **3.1.1** ) — Insert the following clause after **3.1.1**:

'**3.1.2** Quality of water used for processing shall conform to IS 4251 : 1967[‖].'

( *Page* 4, *footnotes* ) — Insert the following footnote at the end:

'[‖] Quality tolerances for water for processed food industry.'

( FAD 18 )

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Reprography Unit, BIS, New Delhi, India

# AMENDMENT NO. 3 APRIL 2011
# TO
# IS 4950 : 1968 SPECIFICATION FOR BACON RASHERS, CANNED

[*Page* 6, *clause* **4.2**(c)] — Substitute 'Net quantity of the contents of the container,' *for* 'Net weight of the contents of the container,'.

[*Page* 6, *clause* **4.2**(f)] — Insert the following at the end:

'f) Any other marking required under the *Standards of Weights and Measures (Packaged Commodities) Rules,* 1977, and the *Prevention of Food Adulteration Act,* 1954 and the Rules framed thereunder.'

(FAD 18)

Reprography Unit, BIS, New Delhi, India

# *Indian Standard*
# SPECIFICATION FOR BACON RASHERS, CANNED

## 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 24 December 1968, after the draft finalized by the Meat and Meat Products Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** With the continued growth of bacon factories in the country, the demand for bacon rashers has been growing in the civilian as well as the defence establishments. In view of the vastness of the country and spread-over of consumers in distant places where fresh rashers are not available, it is imperative to meet the requirement by the supply of canned bacon. With the growth of industry, the product may also find an avenue for export. This standard is, therefore, being prescribed to help in exercising proper quality control of canned bacon rashers.

**0.3** In the preparation of this standard, due consideration has been given to the Prevention of Food Adulteration Act, 1954, and the rules framed thereunder. However, this standard is subject to the restrictions imposed under this Act, wherever applicable.

**0.4** In the preparation of this standard, considerable assistance has been derived from the Commonwealth Food Specification CFS 5.2.1 'Bacon rashers, canned' issued by the Department of Commerce & Agriculture, Commonwealth of Australia.

**0.5** This standard contains clauses regarding packing and marking (*see* **4.1.1**, **4.1.2**, and **4.2**) of canned bacon rashers, which call for an agreement between the purchaser and the packer at the time of placing orders.

**0.6** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1. SCOPE

**1.1** This standard prescribes the requirements and the methods of sampling and test for canned bacon rashers.

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*Rules for rounding off numerical values (*revised*).

## 2. TYPES

**2.1** For the purpose of this standard, the material shall be of the following types:

a) Bacon rashers ( middle and shoulder ), and
b) Streaky rashers.

## 3. REQUIREMENTS

**3.1 Hygienic Requirements** — The material shall be prepared and handled under strict hygienic conditions by persons free from contagious and infectious diseases and only in premises maintained in a thoroughly clean and hygienic conditions and having adequate and safe water supply ( *see* IS : 2491-1963* ) and duly approved and licensed by the public health authorities concerned. All workers shall use clean, washed, white clothings. Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

**3.1.1** All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hose, brushes and other equipment necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersion in or swabbing with hypochlorite or other suitable chlorine solution.

### 3.2 Raw Materials

**3.2.1** *Bacon* — The bacon from which rashers are derived shall be properly cured and smoked and shall not be overfat. It shall conform to IS : 2475-1963†.

**3.2.2** *Salt* — Salt used shall conform to IS : 253-1964‡. Salt shall be not less than 1·5 percent and not more than 3·5 percent in the finished product when tested according to the method prescribed in Appendix A.

**3.2.3** *Nitrate and Nitrite* — The nitrate content shall not exceed 0·05 percent by weight ( expressed as sodium nitrate ) and the nitrite content 0·02 percent by weight ( expressed as sodium nitrite ) in the finished product when tested according to the methods prescribed in Appendices B and C respectively.

**3.2.4** *Sugar* — Sugar, if used, shall conform to IS : 1679-1960§.

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*Code for sanitary conditions for food processing units.

†Specification for smoked bacon.

‡Specification for edible common salt ( *revised* ). ( **Since revised** ).

§Specification for sugar used in food preservation industry.

## 3.3 Preparation and Processing

**3.3.1** The rashers shall be evenly cut, and shall be of even thickness. Irregular slices shall not be included.

**3.3.2** The containers shall be thoroughly cleaned by means of hot water jets or other approved methods and then kept inverted to drain and dry before filling. If the cans are lacquered, the lacquer used shall be heat resistant and of such quality that it does not impart any foreign unpleasant taste and smell to the contents of the can; and does not peel off during processing and storage of the product. The lacquer shall not be soluble in fat or brine to any extent. The cans shall show no evidence of rusting.

**3.3.3** The rashers shall be uniformly placed on a sheet of parchment paper or cellulose film or butter paper, folded up and placed in cans.

**3.3.4** The filled cans shall be exhausted and hermetically sealed. Processing shall be at such temperature and for such length of time as will ensure proper cooking and preservation of the finished product.

## 3.4 Finished Product Requirements

**3.4.1** *Vacuum Requirements* — The cans shall give a vacuum of not less than 10 cmHg at 27 ± 2°C under normal atmospheric pressure when tested according to the method prescribed in Appendix D.

**3.4.2** The product shall have a pleasant flavour, characteristic taste, neither excessive salty nor sweetish. The product shall be free from any foreign odour or flavour, such as, putrid, stale, fermented, rancid, musty and staggy pork odour.

**3.4.3** The product shall be free from foreign material, such as dirt, insect parts, wood, glass and metal particles.

**3.4.4** The material shall also conform to the limits for metallic impurities and microbiological activity as prescribed in Table 1.

TABLE 1 LIMITS FOR METALLIC IMPURITIES AND MICROBIOLOGICAL ACTIVITY

| SL No. | CHARACTERISTIC | REQUIREMENT | METHOD OF TEST ( REF TO APPENDIX IN IS : 1743 - 1960* ) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| i) | Arsenic, ppm, *Max* | 1 | J |
| ii) | Lead, ppm, *Max* | 5 | K |
| iii) | Copper, ppm, *Max* | 15 | L |
| iv) | Zinc, ppm, *Max* | 19 | M |
| v) | Tin, ppm, *Max* | 140 | N |
| vi) | Microbiological activity | To satisfy the requirements of the test | P |

*Specification for meat of sheep and goats canned in brine.

## 4. PACKING AND MARKING

### 4.1 Packing

**4.1.1** *Packing in Cans* — Subject to the agreement between the purchaser and the vendor, each can ( if not lacquered for meat packing ) shall be coated on the inner side with edible gelatin, lard or lined with vegetable parchment paper before filling the product.

**4.1.2** *Packing in Cases* — Unless otherwise specified, cans shall be packed in cases sufficiently strong to withstand rough handling during transit.

**4.2 Marking** — The cans may be labelled either by printing or stencilling on the cans themselves or by pasting printed labels as agreed to between the purchaser and the vendor. The label shall bear the following information:

a) Name and type of the material,
b) Name and address of the manufacturer,
c) Net weight of the contents of the container,
d) Batch number or code number — embossed indelibly on the container, and
e) Licence number given by the authorities.

**4.2.1** Each container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## 5. SAMPLING

**5.1** Sampling of bacon rashers, canned, shall be done according to the method prescribed in Appendix C of IS : 4352-1967*.

## 6. TESTS

**6.1** Tests shall be carried out as prescribed in **3.2.2**, **3.2.3**, **3.4.1** and the relevant appendices specified in col 4 of Table 1.

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*Specification for pork luncheon meat, canned.

# APPENDIX A

## ( *Clause* 3.2.2 )

## DETERMINATION OF SODIUM CHLORIDE

### A-1. REAGENTS

**A-1.1 Sodium Carbonate Solution** — 5 percent ( *w/v* ).

**A-1.2 Dilute Nitric Acid** — ( 1 : 4 ), freed from lower oxides of nitrogen by boiling till it becomes colourless.

**A-1.3 Standard Silver Nitrate** — 0·1 N.

**A-1.4 Nitrobenzene**

**A-1.5 Ferric Alum Indicator Solution** — A saturated solution of ferric alum [ $FeNH_4(SO_4)_2.12H_2O$ ].

**A-1.6 Standard Potassium Thiocyanate Solution** — 0·1 N.

### A-2. PROCEDURE

**A-2.1 Preparation of Sample** — Pass the material through a mincing machine twice to ensure thorough mixing. Transfer the minced sample to a large porcelain mortar and grind with a pestle for 5 minutes to ensure homogeneity.

**A-2.2** Weigh accurately about 5 g of the finely ground and thoroughly mixed sample in a platinum dish and add 20 ml of the sodium carbonate solution. Evaporate to dryness and ignite as thoroughly as possible at a temperature not exceeding dull redness. Extract with hot water, filter and wash. Return the residue to the platinum dish and ignite to ash. Dissolve the ash in the dilute nitric acid. Filter and wash the residue thoroughly. Collect the filtrate and washings and add to the water extract. To this solution, add a known volume of the standard silver nitrate solution in slight excess. Stir well, add 5 ml of nitrobenzene, shake and add 5 ml of the ferric alum indicator solution and a few millilitres of the dilute nitric acid. Titrate the excess silver nitrate with the standard potassium thiocyanate solution until permanent light brown colour appears.

### A-3. CALCULATION

**A-3.1** Sodium chloride, percent by weight $= \dfrac{5\cdot85\,(V_1N_1 - V_2N_2)}{W}$

where

$V_1$ = volume in ml of the standard silver nitrate solution added,
$N_1$ = normality of the standard silver nitrate,
$V_2$ = volume in ml of the standard potassium thiocyanate solution used,
$N_2$ = normality of the standard potassium thiocyanate, and
$W$ = weight in g of the material taken for the test.

# APPENDIX B

( *Clause* 3.2.3 )

## DETERMINATION OF NITRATE

### B-1. APPARATUS

**B-1.1 Photoelectric Colorimeter**

### B-2. REAGENTS

**B-2.1 Standard Silver Sulphate Solution** — Dissolve 4·397 g of silver sulphate ( $Ag_2SO_4$ ) nitrate-free, in one litre of water. One millilitre of this solution is equivalent to one milligram of chlorine.

**B-2.2 Alumina Cream**

**B-2.3 Phenol Disulphonic Acid Solution** — Dissolve 25 g of pure white phenol in 150 ml of sulphuric acid. Add 75 ml of fuming sulphuric acid ( 13 to 15 percent of $SO_3$ ) and heat for 2 hours at 100°C.

**B-2.4 Ammonium Hydroxide** — concentrated.

**B-2.5 Standard Nitrate Solution** — Dissolve 0·607 g of sodium nitrate ( analytical reagent grade ) in one litre of nitrate-free water. Evaporate 50 ml of this solution to dryness in a porcelain dish. When cool, treat with 2 ml of phenol disulphonic acid solution, grind and stir with a glass rod to ensure intimate contact and dilute to 500 ml in a graduated flask. One millilitre of this solution contains 0·01 mg of nitrogen or 0·04 mg of nitrate ( $NO_3$ ) or 0·06 mg of sodium nitrate ( $NaNO_3$ ).

## B-3. PROCEDURE

**B-3.1** Extract 100 g of the thoroughly prepared sample by boiling 6 to 7 times, with successive 35- to 50-ml portions of water. Decant the extract through muslin cloth or filter paper into an evaporating basin and evaporate to a volume of about 35 ml. Make up the volume to 50 ml. Take a 5-ml aliquot and make up the volume to 100 ml. Take 2 ml of this solution for the test and dilute it to 50 ml in a 100-ml flask. Add sufficient standard silver sulphate solution to precipitate all but about 0·5 mg of chlorine. Heat to boil and allow to settle or add a little alumina cream, filter and wash with small quantities of hot water. Evaporate the filtrate to dryness in a porcelain dish on a steam-bath. Cool and treat with 2 ml of the phenol disulphonic acid solution. Dilute with water and slowly add ammonium hydroxide solution until maximum colour development occurs. Filter, if necessary. Transfer to the colorimeter tube and read the colour. Prepare at least three replications and take the average.

**B-3.2** Prepare a series of standards by diluting suitable aliquots of the standard nitrate solution. Develop and read the colour in the same manner as in the case of the test solution and prepare a standard curve. From the curve, determine the weight of nitrate present in the test solution and calculate the percentage of nitrate in the sample.

# APPENDIX C

( *Clause* 3.2.3 )

## DETERMINATION OF NITRITE

## C-1. APPARATUS

**C-1.1 Photoelectric Colorimeter or Spectrophotometer**

## C-2. REAGENTS

**C-2.1 Mercuric Chloride Solution ( $HgCl_2$ )** — saturated.

**C-2.2 Modified Griess Reagent** — Dissolve 0·5 g of sulphanilic acid in 150 ml of acetic acid ( 15 percent by volume ). Boil 0·1 g of α-naphthylamine in 20 ml of water until dissolved and pour while hot into 150 ml of dilute acetic acid. Mix the two solutions and store in a brown glass bottle.

**C-2.3 Standard Nitrite Solution** — Dissolve 1·1 g of silver nitrite ( $AgNO_2$ ) in nitrite-free water. Precipitate the silver with sodium chloride solution. Dilute to one litre, mix and allow to settle. Dilute 100 ml of the liquid to one litre and then further dilute 10 ml of this solution to one litre using nitrite-free water in each case. One millilitre of the final solution contains one microgram of nitrogen or five micrograms of sodium nitrite ( $NaNO_2$ ).

## C-3. PROCEDURE

**C-3.1** Weigh accurately 5 g of the prepared sample into a 50-ml beaker. Add about 40 ml of nitrite-free water heated to 80°C. Mix thoroughly with glass rod, taking care to break up all the lumps and transfer to a 500-ml graduated flask. Wash the beaker and the rod with successive portions of the hot water, adding all the washings to the flask. Add sufficient hot water to bring the volume to about 300 ml. Transfer the flask to a steam-bath and let it stand for two hours, shaking occasionally. Add 5 ml of the mercuric chloride solution and mix. Cool to room temperature, dilute to the mark with nitrite-free water and mix again. Filter, dilute suitable aliquot to the mark in a 50-ml graduated flask. Add 2 ml of the modified Griess reagent, mix and allow the colour to develop for an hour. Transfer a suitable portion of the solution to the photometer cell and determine the absorbance at a wave length of 520 mμ, setting the instrument to zero absorbance with blank of 50 ml water plus 2 ml of the modified Griess reagent.

**C-3.2** Prepare a series of standards by diluting suitable aliquots of the standard nitrite solution to the mark in a 50-ml graduated flask, add 2 ml of the modified Griess reagent and proceed in the same manner as with the test solution. From the absorbance values of the standard solutions, prepare a standard curve and determine the weight of nitrite present in the test solution and calculate the percentage of nitrite in the sample.

# APPENDIX D

( *Clause* 3.4.1 )

## RECORDING OF VACUUM OF THE CANS

**D-1.** The vacuum in the can may be determined with an electric recording type machine or a vacuum gauge of the piercing type without opening the can.

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